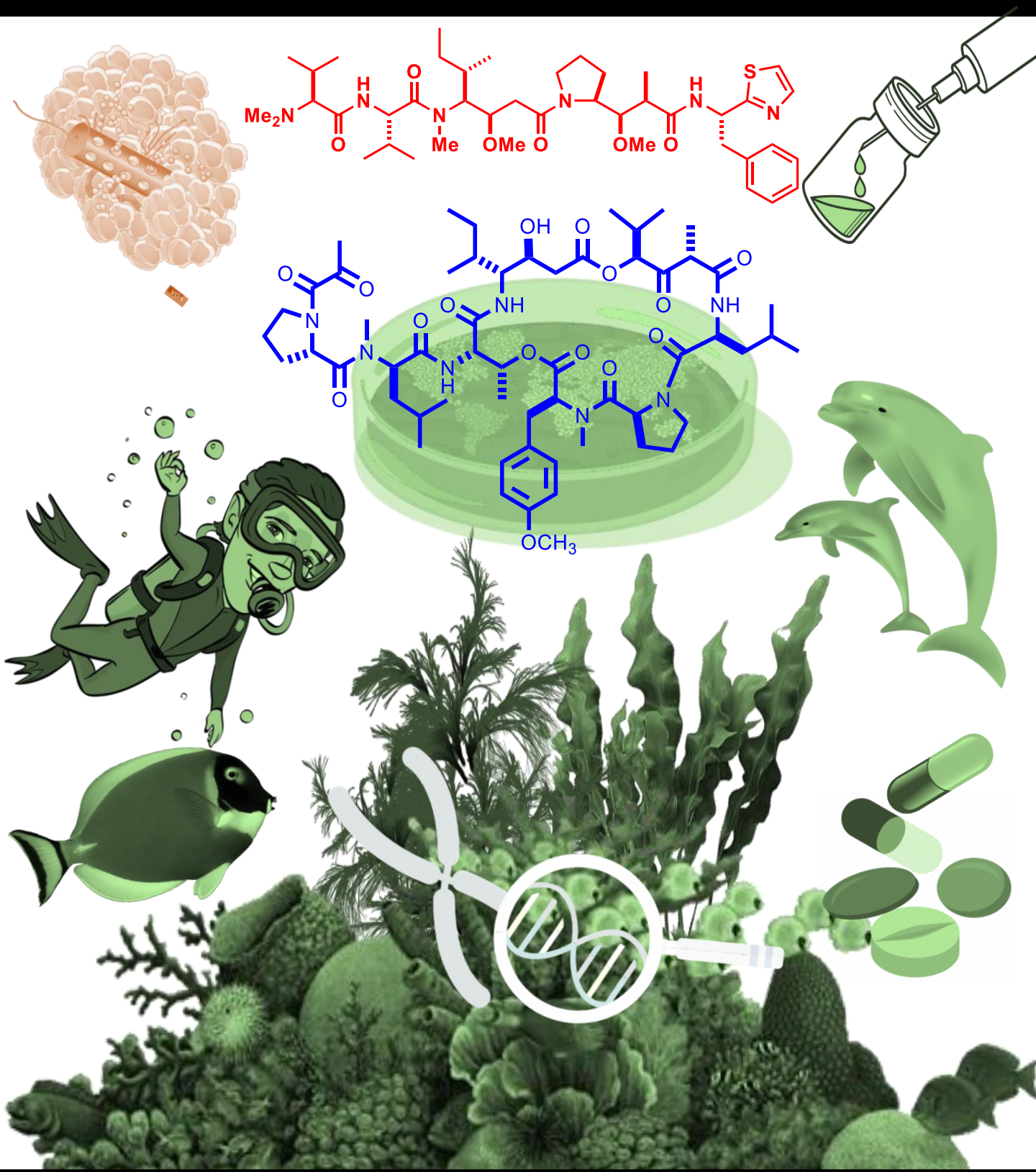
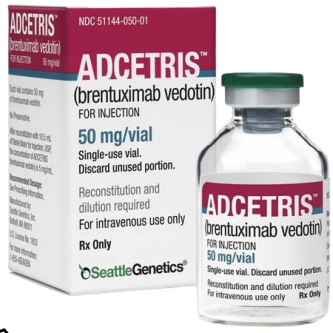
Marine Drugs

2021 – 2022 {Lecture 6}



Dr. Omar M. Sabry

7. Brentuximab - ADCETRIS®



Name: Brentuximab

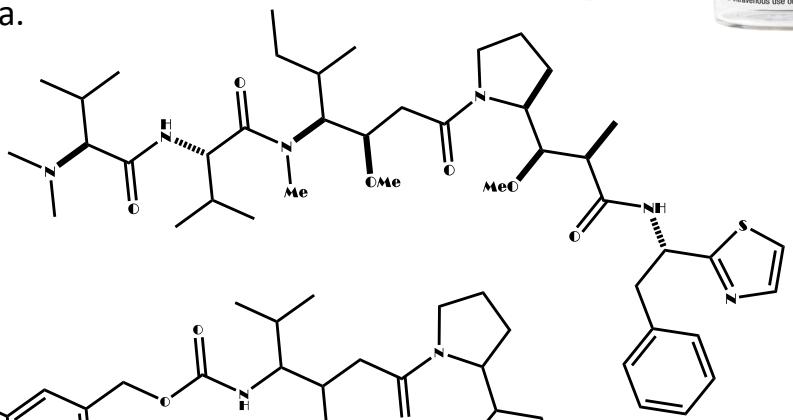
Nature: Polypeptide monoclonal antibody conjugate

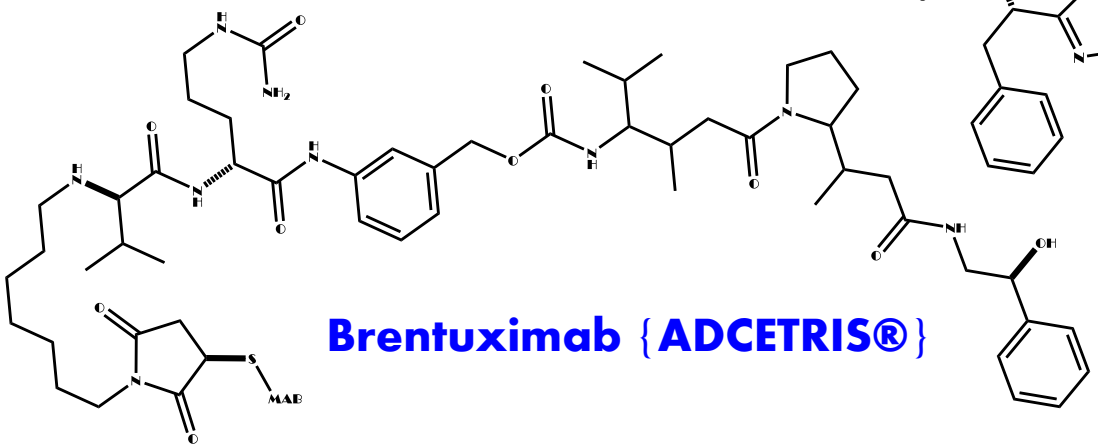
Source: Synthetic conjugate inspired from dolastatin 10

Mechanism: Microtubules stabilizer {anti-mitotic}

Medical uses: Lymphoma.

Dolastatin 10





Brentuximab {ADCETRIS®}

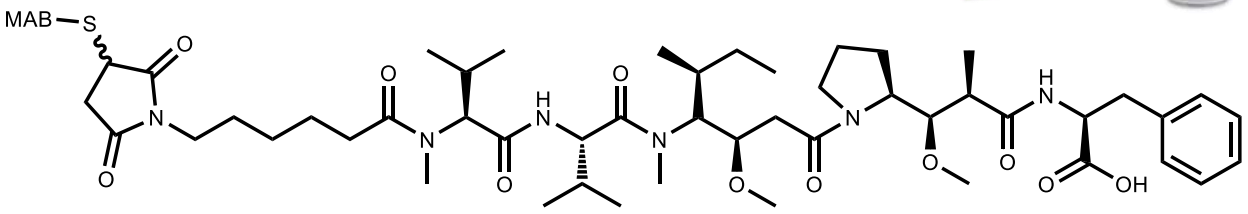
8. Belantamab Blenrep®

Nature: Polypeptide monoclonal antibody conjugate

Source: Synthetic conjugate inspired from dolastatin 10

Mechanism: Microtubules stabilizer {anti-mitotic}

Medical uses: Relapsed/refractory multiple myeloma



Blenrep®

9. Trabectedin – Yondlis®

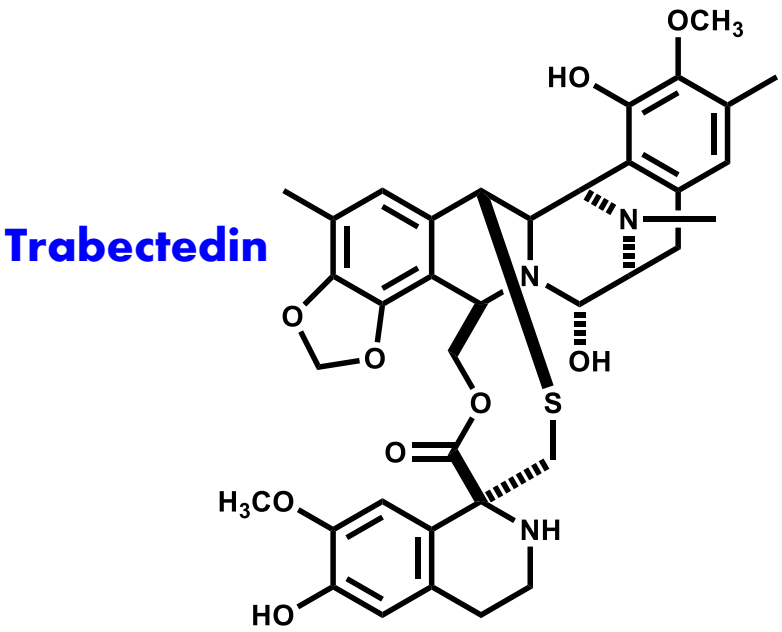
Name: Trabectidin – Yondlis®

Nature: Tetra-hydroisoquinoline alkaloid

Source: Isolated from the tunicate *Ecteinascidia turbinata.* {Now Semisynthetic}

Mechanism of action: DNA alkylating agent.

Medical uses: Colo-rectal cancer {Concentrated mainly in large intestine}.



10. Lurbinectedin - Zepzelca®

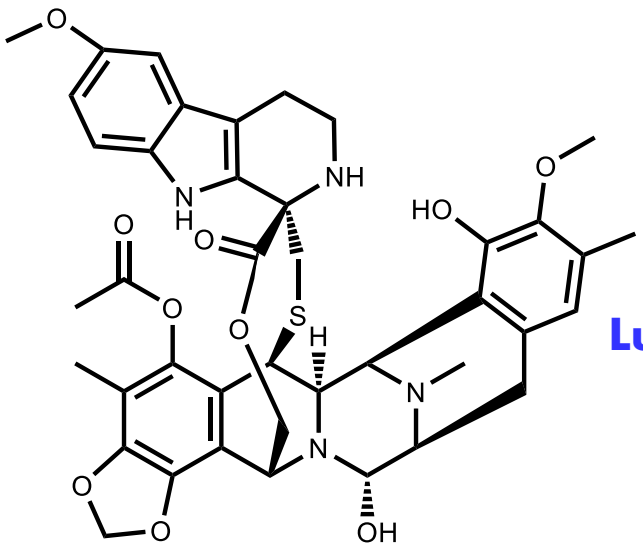
Name: lurbinectedin - Zepzelca®

Nature: Tetra-hydroisoquinoline alkaloid

Source: Semisynthetic compound inspire from Trabectidin

Mechanism of action: DNA alkylating agent.

Medical uses: Metastatic small cell lung cancer (SCLC).



Lurbinectedin

11. Omega-3 PUFAs - Fish oil®

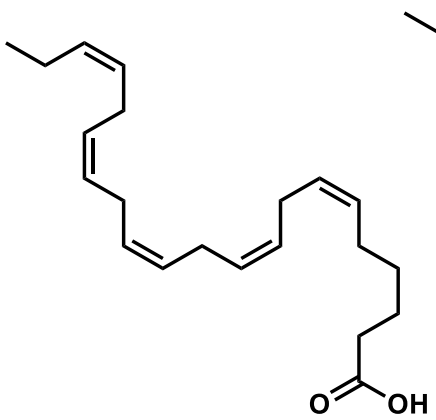
Name: Omega-3 fatty acids esters - DHA and EPA {Fish oil®}

Nature: Fatty acids esters {Lipids}

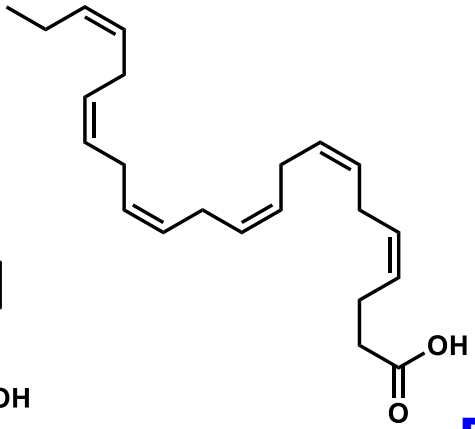
Source: Cod fish liver

Mechanism of action: Share in biosynthesis of the useful ecosonoids - anti-oxidant

Medical uses: Anti-oxidant, anti-inflammatory and cardiovascular protective Omega-6 fatty acids share in biosynthesis of the harmful ecosonoids,



EPA®



DHA®

12. Pseudopterosin A - Pseudopterosin A®

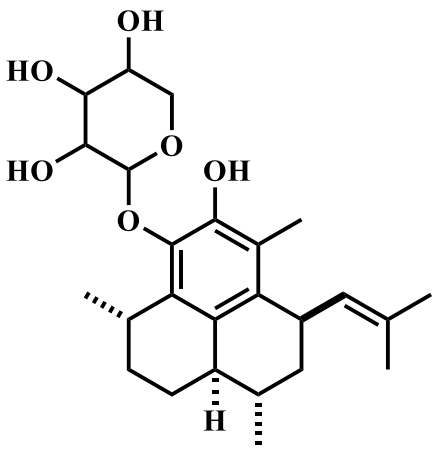
Name: Pseudopterosin A®

Nature: Diterpene phenol

Source: Soft coral *Pseudoterogorgia elisabethae*

Mechanism of action: Acts by inhibition of COX I and COX II

Medical uses: Anti-inflammatory for skin care e.g. trauma



Pseudopterosin A

Examples of The Approved {Marketed} Marine Drugs

Name	Trade Name	Organism	Class	Target	Disease
Cytarabine (Ara-C)	**Cytosar-U®**	**Micro-organism on a Sponge**	**Nucleoside**	**DNA Polymerase**	**Cancer**
Vidarabine (Ara-A)	**Vira-A®**	**Micro-organism on a Sponge**	**Nucleoside**	**DNA Polymerase**	**Antiviral**
Plitidepsin	**Aplidin®**	**Tunicate**	**Depsipeptide**	**Apoptosis**	**Cancer**
Eribulin	**Halaven®**	**Sponge**	**Polyketide**	**Microtubules** **Desabilization**	**Cancer**
Ziconotide	**Prialt®**	**Cone Snail**	**Polypeptide**	**N-Type Ca^{2+} Channel**	**Analgesic**
Tetrodotoxin	**Halneuron®**	**Puffer fish**	**Polyether Alkaloid**	**Sodium Channel Blocker**	**Strong pain killer**

Examples of The Approved {Marketed} Marine Drugs

Name	Trade Name	Organism	Class	Target	Disease
Brentuximab	**ADCETRIS®**	**Mollusk**	**Polypeptide monoclonal antibody conjugate**	**Microtubules** **Stabilizer**	**Lymphoma** **cancer**
Belantamab	**Blenrep®**	**Mollusk**	**Polypeptide monoclonal antibody conjugate**	**Microtubules** **Stabilizer**	**Multiple myeloma cancer**
Trabectedin	**Yondelis®**	**Tunicate**	**Alkaloid**	**DNA alkylation**	**Colo-rectal cancer**
Lurbinectedin	**Zepzelca®**	**Tunicate**	**Alkaloid**	**DNA alkylation**	**Lung cancer**
Omega-3-Fatty Acids	**Fish oil®** **Lovaza®**	**Fish**	**Omega-3 Fatty Acids**	**Triglyceride-Synthesizing Enzymes**	**Cardiovascular protective**
Pseudopterosin A	**Pseudopterosin A®**	**Soft coral *Pseudoterogorgia elisabethae***	**Diterpene phenol**	**Inhibition of COX I and COX II**	**Skin trauma**